

# Avaya one-X<sup>™</sup> Deskphone Value Edition SIP for 1603SW-I IP Deskphones

Installation and Maintenance Guide Release 1.0

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Using a cell, mobile, or GSM telephone, or a two-way radio in close proximity to an Avaya IP Telephone might cause interference.

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# **Chapter 1: Introduction**

## **About This Guide**

This guide describes how to install and maintain the Avaya one-X<sup>™</sup> Deskphone Value Edition SIP for 1603SW-I IP Deskphone product line and troubleshoot telephone problems.

The 1603SW-I IP Deskphones support two signaling protocols, Session Initiation Protocol (SIP) and H.323 protocol. One of the following must be installed to use the 1603SW-I IP Deskphones with the SIP protocol:

- Avaya Aura <sup>™</sup> Communication Manager Release 6.0 or later and Avaya Aura <sup>™</sup> Session Manager Release 6.0 or later.
- Avaya Midsize Business Template Release 5.2.1 and Avaya SIP Enablement Services Release 5.2.1.

#### Note:

Any reference to HTTP in this guide applies equally to HTTPS.

When running the 1603SW-I IP Deskphones in an H.323 environment see the Avaya 1600 Series IP Deskphones Installation and Maintenance Guide for installation and maintenance information.

This document does not cover installation or administration for Avaya Aura™ Session Manager. Find full documentation for Avaya Aura™ Session Manager on the Avaya support Web site, www.avaya.com/support, specifically Installing and Upgrading Avaya Aura™ Session Manager (Document Number 03-603473) and Administering Avaya Aura™ Session Manager (Document Number 03-603324).

For more information about administering Avaya Midsize Business Template Release 5.2.1 and Avaya SES R5.2.1, go to www.avaya.com/support.

# **Intended Audience**

This document is intended for personnel who install and administer the 1603SW-I IP Deskphones.



## **L** CAUTION:

Avaya does not provide product support for many of the products mentioned in this document. Take care to ensure that there is adequate technical support available for the servers involved, including, but not necessarily limited to, HTTP, HTTPS, and DHCP servers. If the servers are not functioning correctly, the IP Deskphones might not be able to operate correctly.

# **Document Organization**

The guide contains the following sections:

Chapter 1: Introduction	Provides an overview of this guide.
Chapter 2: 1603SW-I IP Deskphone Installation	Describes the equipment and resources required to properly install and operate the 1603SW-I IP Deskphone. Provides instructions on installing the telephones out of the box.
Chapter 3: Local Administrative Options	Describes how to set local administrative options, if requested by the system or LAN administrator.
Chapter 4: Maintaining 1603SW-I IP Deskphones	Describes maintenance actions like downloading telephone software from the Avaya support Web site and customizing system values.
Chapter 5: Troubleshooting Guidelines	Describes error conditions and messages that might occur during the installation of the 1603SW-I IP Deskphone.
Appendix A: Restart Scenarios	Explains the different scenarios possible for the sequence of the restart process.
Appendix B: Glossary of Terms	Provides a glossary of terms used in this document or which are generally applicable to 1603SW-I IP Deskphone.
Appendix C: Related Documentation	Provides references to external documents that relate to telephony in general, and can provide additional information about specific aspects of the telephones.

# **Other Documentation**

See the Avaya support site at http://www.avaya.com/support for 1603SW-I IP Deskphone technical and end user documentation.

See Appendix C: Related Documentation for a list of non-Avaya documents, such as those published by the Internet Engineering Task Force (IETF) and International Telecommunication Union (ITU).

# **Customer Support**

For 1603SW-I IP Deskphone support, call the Avaya support number provided to you by your Avaya representative or Avaya reseller.

Information about Avaya products can be obtained at the following URL:

http://www.avaya.com/support

Introduction

# Chapter 2: 1603SW-I IP Deskphone Installation

# Introduction

The 1603SW-I IP Deskphones use Internet Protocol (IP) technology with Ethernet interfaces. The IP telephones supplement the existing Avaya IP Solutions platform.

The 1603SW-I IP Deskphones support DHCP and HTTP/HTTPS over TCP which enhance the administration and servicing of the telephones. These telephones use DHCP to obtain dynamic IP addresses, HTTP or HTTPS to download customized settings for the telephones, and HTTP only to download the new software version.

The 1603SW-I IP Deskphones provide the ability to have one IP connection on the desktop for both a telephone set and a PC using an Ethernet switch.

In compliance with Australian law, the following information is provided:

This equipment shall be installed and maintained by trained service personnel. All the input/ output ports are classified as Safety Extra Low Voltage (SELV, in the meaning of IEC 60950). To maintain safety compliance when connecting the equipment electrically to other equipment, the interconnecting circuits shall be selected to provide continued conformance of clause 2.3 for SELV circuits (generally, double/reinforced insulation to 240Vac rms to any primary/mains circuitry and 120Vac rms to any telecommunications network circuitry). To ensure that these conditions are adhered to, interconnect the equipment only with the already approved/certified equipment.

## **IP Telephone Models**

The 1603SW-I telephones have:

- three call appearance/feature buttons
- a two-row by 16-column display

The 1603SW-I IP Deskphones also have an internal Ethernet switch that allows the telephone and a PC to share the same LAN connection, if appropriate. Thus, these telephones do not need, or work with, the 30A switched hub interface.

This document describes the installation of these telephones and post-installation maintenance issues. For details about using the features provided by the telephones, see the user documentation for each telephone. For information about desk or wall mounting any of the 1603SW-I IP Deskphones, see the instructions boxed with the telephone. Wall or desk mount instructions are also available on the Avaya support Web site http://www.avaya.com/support.

## Software

The 1603SW-I IP Deskphones ship from the factory set tot he H.323 protocol. To run the deskphones in a SIP environment, you must convert the deskphones to SIP settings. Further, a factory-shipped 1603SW-I IP Deskphone will not contain the most up-to-date software for registration and SIP operation. When the deskphone is first plugged in, a software download from an HTTP server might be initiated. The software download gives the telephone upgraded H.323 functionality, however, you must still download the latest SIP software bundle for the deskphones to be converted to SIP, then convert the deskphones to run SIP software, as describe in Converting Software on 1603SW-I IP Deskphones on page 13.

For subsequent downloads of software upgrades, Avaya Aura Session Manager and Avaya SES provide the capability for a remote reboot of the deskphone. As a consequence of rebooting, the deskphone automatically downloads new software if it is available. Chapter 4: Maintaining 1603SW-I IP Deskphones covers downloading new software releases.

## **Pre-Installation Checklist**

Before plugging in the 1603SW-I IP Deskphones, verify that all the following requirements are met. Failure to do so prevents the telephone from working properly and can have a negative impact on the network. Print copies of this checklist for each server and deskphone.

#### **Verify These Network Requirements**

- Ensure that the LAN uses Ethernet Category 5e cabling running the IPv4 version of Internet Protocol.
- Ensure that the following is installed and/or set up and operative: 2.
  - One of the following SIP environments:
    - Avava Aura Session Manager Release 6.0 or greater and Avaya Communication Manager (CM) Release 6.0 or greater.
    - Avava Midsize Business Template Release 5.2.1 and Avava SES Release 5.2.1.
  - NTP Time Server.



## **A** Important:

The above must be configured properly to support SIP. The CM Outboard Proxy SIP (OPS) Station Form must be completed to enable SIP prior to plugging in the telephones. For information, see SIP Support in Avaya Communication Manager Running on Avaya S8XXX Servers (Document Number 555-245-206).

#### Note:

All 1603SW-I IP Deskphones must be aliased as a 9620 SIP.

- 3. The following circuit packs are installed on the switch:
  - TN2602 IP Media Processor circuit pack. Sites with a TN2302 IP Media Processor circuit pack are strongly encouraged to install a TN2602 circuit pack to benefit from increased capacity.
  - TN799C V3 or greater Control-LAN (C-LAN) circuit pack.



## **A** Important:

IP telephone firmware requires TN799C V3 or greater C-LAN circuit pack(s). For more information, see the Communication Manager Software and Firmware Compatibility Matrix on the Avaya support Web site http://www.avaya.com/support.

Later versions of the Communication Manager S87XX or S85XX can use Processor Ethernet in place of the C-LAN.

Sites with H.248 gateways will use the Processor Ethernet (procr) on the S8300 in place of the C-LAN. The media processor resources are embedded on the gateway. See the gateway documentation for media processor capacity.

#### **Verify These Network Requirements (continued)**

- The Communication Manager (CM) call server is configured correctly, as described in the Avaya one-X<sup>™</sup> Deskphone Value Edition SIP for 1603SW-I IP Deskphones Administrator Guide and Avaya Communication Manager documentation. Both documents are available at <a href="http://www.avaya.com/support">http://www.avaya.com/support</a>.
- The DHCP server and application are administered as described in the Avaya one-X<sup>™</sup> Deskphone Value Edition SIP for 1603SW-I IP Deskphones Administrator Guide.
- The HTTP server and application are administered as described in the Avaya one-X<sup>™</sup> Deskphone Value Edition SIP for 1603SW-I IP Deskphones Administrator Guide.
- **7.** The SIP upgrade script and application files from the Avaya Support Web site, <a href="http://www.avaya.com/support">http://www.avaya.com/support</a>, are loaded correctly on the HTTP/HTTPS server.
- **8.** If applicable, the Voice Mail server is administered as described in the *Avaya one-X*™ *Deskphone Value Edition SIP for 1603SW-I Deskphones Administrator Guide.*

#### Notes:

- Any or all of the server applications mentioned in items 5-8 can be co-resident on the same hardware, subject to the specific restrictions of each individual application.
- See the Avaya one-X<sup>™</sup> Deskphone Value Edition for 1603SW-I Deskphones Administrator Guide for more information about:
  - administering other network equipment,
  - administering applications like firewalls, and
  - information about topics like port utilization.

## Requirements to Verify for Each IP Telephone

- You have an extension number and an Avaya Communication Manager security code (password) for each applicable IP telephone.
   You have an OPTIM extension number and an Avaya Communication Manager
  - security code (password) for each telephone, and have configured Avaya Session Manager or Avaya SES for each telephone.
- 11. A Category 5e LAN jack is available at each telephone site.
- **12.** Electrical power is provided to each telephone by a Telephone Power Module (DC power jack) (must be ordered separately). If the LAN will supply IEEE-standard power to the telephone, no power module is required.
- 13. 1 Category 5e modular line cord is available for the connection between the IP telephone and the PC, if applicable.
- **14.** Verify that the 1603SW-I IP Deskphone package includes the following components:
  - 1 telephone set with stand.
  - 1 handset capable of transmitting and receiving 7KHz audio.
  - 1 H4DU 9-foot long (when extended) 4-conductor coiled handset cord, plugged into the telephone and the handset.
  - Avaya 1600 Series IP Telephones Safety Instructions.

You will need 1 Category 5e modular line cord for the connection from the IP telephone to the Ethernet wall jack.

15.	IP telephones ship from the factory with H.323 software. Existing installations might also have many IP telephones running H.323 software. For instructions on how to convert between H.323 and SIP software, see Converting Software on 1603SW-I IP
	<u>Deskphones</u> .

#### Note:

The 1603SW-I IP Deskphone does not support headsets.

# Converting Software on 1603SW-I IP Deskphones

1603SW-I IP Deskphones use either H.323 or SIP software but come from the factory with H.323 software loaded by default. To convert the software from H.323 to SIP on the 1603SW-I IP Deskphones, you must specify SIP in the 16xxupgrade.txt file on a file server. When a deskphone is first plugged in, it will download the 16xxupgrade.txt file from a file server via HTTP or HTTPS. The 16xxupgrade.txt file tells the deskphone which binary file the deskphone must use. If the 16xxupgrade.txt file specifies the deskphone to use SIP, the deskphone will install the binary files with the latest SIP binary code.

# Assembling the 1603SW-I IP Deskphones



#### CAUTION:

Be careful to use the correct jack when plugging in the deskphone. The jacks are located on the back of the deskphone housing and are flanked by icons to represent their correct use.

## Powering the 1603SW-I IP Deskphones

All 1603SW-I IP Deskphoness can be locally powered with a Telephone Power Module (DC power jack), available separately. The DC input rating is 5 VDC, 2A. In addition, the telephones support IEEE 802.3af-standard LAN-based power. (To use LAN-based power with a 1603 telephone, you must use a Power over Ethernet adapter.) Before installing a 1603SW-I IP Deskphones, verify with the LAN administrator whether the LAN supports IEEE 802.3af, and if so, whether the telephone should be powered locally or by means of the LAN.

#### Note:

The last step in assembling the 1603SW-I IP Deskphones **must** be applying power. Apply power either by plugging the power cord into the power source (local powering) or plugging the modular line cord into the Ethernet wall jack (IEEE powering). Do not use the 1151 power adapter with these telephones.

#### Note:

### For Brazilian user when using the 5V power adapter:

For the user's safety and to avoid electric shock, this equipment must be connected to a grounded (three pin) electrical network power outlet according to Standard NBR ABNT 5410.

Este equipamento deve ser conectado obrigatoriamente em tomada de rede de energia eletrica que possua aterramento (tres pinos), conforme a Norma NBR ABNT 5410, visando a seguranca dos usuarios contra choques eletricos.

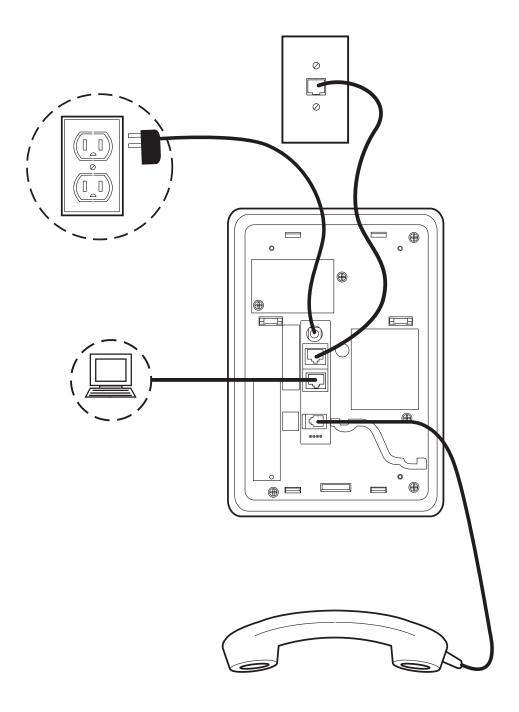


## **L** CAUTION:

Failure to connect the proper cables with the proper jacks might result in an outage in part of your network.

<u>Figure 1</u> provides an illustration that shows how to connect cords to jacks on 1603SW-I IP Deskphones. Use the illustration and the associated procedure for deskphone assembly.

Figure 1: Connection Jacks on a 1603SW/1603SW-I IP Telephone



- 1. Plug one end of the first Category 5 modular line cord into the Ethernet jack of the PC and the other end into the secondary Ethernet jack on the 1603SW-I IP Deskphones, if appropriate.
- 2. Plug one end of the second Category 5 modular line cord into the Ethernet jack on the 1603SW-I IP Deskphones. Plug the other end of this cord into the Ethernet wall jack. If the telephone is to be IEEE-powered, you are finished. Do not proceed to Step 3.
- 3. If the telephone is to be powered locally, plug the power cord into the 1603SW-I IP Deskphones and the power cord plug into the wall socket.

# **Dynamic Addressing Process/Telephone Startup**



## Important:

Before starting this process, read Converting Software on 1603SW-I IP Deskphones on page 13 to understand the requirements for converting factory-set H.323 telephones to SIP and make any changes necessary to suit your particular environment. Also, ensure that both Avaya Communication Manager (CM) and Session Manager (SM) or Avaya Midsize Business Template and Avaya SES are properly set up for your telephone environment.

#### Note:

Before starting this process you must have an OPTIM extension number for the SIP deskphone, the Avaya Aura Communication Manager security code (password) for that extension, and a login and password on the Session Manager or SES server.

Any reference to the HTTP server applies equally to an HTTPS server.

The following description of the process of installing the SIP deskphones assumes that the process is executed successfully. Only an initial out of the box installation is described. For errors that might be encountered during the process and the messages displayed, see Chapter 5: Troubleshooting Guidelines.

When you plug the deskphone into the Ethernet wall jack and apply power, if applicable, the following process takes place.

#### Note:

If the application has already been downloaded, the whole process takes approximately 1 to 2 minutes after the telephone is plugged in. For software upgrades, including the boot file and application file download, the process might take 5 - 10 minutes. The duration is based on LAN loading, how many telephones are being installed at once, and similar factors.

Do not unplug the power cord during the download process.

1. The telephone activates the Ethernet line interface, the PC Ethernet jack, and dial pad input to allow the invocation of procedures. The activation occurs as soon as possible after power-up or a reset.

The telephone displays the speed of the Ethernet interface in Mbps, that is, 10 or 100. The message No Ethernet displays until the software determines whether the interface is 10 Mbps or 100 Mbps.

#### Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC, assuming the administrator has not disabled the latter interface by a PHY2STAT setting.

2. The IP telephone sends a request to the DHCP server and invokes the DHCP process. One of the following messages display:

DHCP: S secs \* to program DHCP: S secs VLAN ID = n

DHCP: S secs

where **s** is the number of seconds that have elapsed since DHCP was invoked. The message on the left appears if 802.1Q tagging is off and access to local programming procedures is not disabled or restricted. (See Chapter 3: Local Administrative Options for specifics.) The middle message appears if 802.1Q tagging is on and access to local programming procedures is disabled or restricted. If the left and middle messages alternate every two seconds, 802.1Q tagging is on. When both messages alternate, access to local programming procedures is not disabled or restricted. Finally, the message on the right appears if 802.1Q tagging is off and access to local programming procedures is disabled or restricted.

- 3. The DHCP server provides IP addresses for the following hardware:
  - The IP telephone
  - The HTTP/HTTPS server
  - The SIP Proxy server
- 4. Using the list of gateway IP addresses provided by the DHCP server, the telephone performs a router check and verifies that the router is on the same subnet as the IP address. The telephone cycles through the gateway IP addresses with ARPs or pings until it receives a response. When the router is located, the HTTP/HTTPS process starts.
- 5. While the IP telephone connects to the HTTP/HTTPS server, the telephone displays the following message:

HTTP:n ipadd

where n is the number of the IP address obtained from the HTTP/HTTPS server and ipaddis the IP address.

#### 1603SW-I IP Deskphone Installation

- 6. When connected, the telephone looks for an upgrade script file.
- 7. The HTTP/HTTPS server sends and identifies an upgrade script.

The GET message might have to be sent several times. Each time the GET message is sent, all IP telephones display one of the following messages:

HTTP: n uri

For HTTP, n is the number of HTTP requests made by the telephone and uri is the URI for the current HTTP request.

8. While the upgrade script file is being downloaded, all IP telephones display the following message:

HTTP:n sc etag

where n is the number of the IP address obtained from the HTTP server, sc is the status code of the HTTP response and *etag* is the value of the ETag header.

9. While the application file is saved in flash memory, the 1603SW-I IP Deskphones display the following message:

Saving to flash 1%, 1 secs

with the percentage of the file and the number of elapsed seconds incremented as the application file is stored in flash memory.

10. Upon successful initialization and power-up, the 1603SW-I IP Deskphones display the following Login prompts for an extension:

**Enter Extension** EXT= #=OK

11. Enter the extension and press **OK**.

The 1603SW-I IP Deskphones display the following prompt for a password:

Login
Enter Password
Enter Password and press Enter or OK

- 12. Enter the password and press **OK**.
- 13. The extension is visible as you enter it but the password displays as asterisks. The system determines whether the extension is in use.
- 14. The telephone initiates SIP registration with the proxy server. The telephone attempts to register to the SIP proxy server at the address in the SIP\_CONTROLLER\_LIST parameter using the user name and password provided during the login process. It also uses the SIPDOMAIN parameter. The telephone uses a SIP URI. SIP\_CONTROLLER\_LIST provides a list of server addresses. The phone attempts to register to only the first server in the list. Also, the phone reboots when there is no server provisioned (to allow provisioning via DHCP or the settings file) or the provisioned server cannot be contacted. If the server address is a hostname or a fully-qualified domain name (FQDN), the telephone will do a DNS Any lookup of the server address before proceeding with the SIP registration. The telephone waits for a register response message. If no message is received before the end of the WAIT\_FOR\_REGISTRATION\_TIMER interval, registration is retried. After every successful registration:
  - REUSE IPADD will be set to the value of IPADD,
  - REUSE\_NETMASK will be set to the value of NETMASK,
  - REUSE ROUTERS will be set to the value of ROUTERS,
  - REUSE\_ROUTER\_IN\_USE will be set to the value of ROUTER\_IN\_USE,
  - REUSE TAGGING will be set to the value of TAGGING.
  - REUSE L2QVLAN will be set to the value of VLAN IN USE, and
  - the MIB object endptVLANLIST will be set to the value of VLANLIST, and then the value of VLANLIST will be set to null.
- 15. The telephone contacts PPM, logs in, and downloads the configuration file.
- 16. Successful completion of this process produces a dial tone when the Speaker button is pressed or the handset is lifted.

The 1603SW-I IP Deskphone was installed successfully.

# **Printing Button Labels**

You can download software from www.desi.com that enables you to print button labels for the 1603SW-I IP Deskphones. To download this software, perform the following steps:

- 1. Using your web browser, go to www.desi.com.
- 2. Click **DESI downloads**.
- 3. Download the appropriate application.

# **Chapter 3: Local Administrative Options**

## Introduction

After you have successfully installed a 1603-SWI SIP Deskphone, you might be instructed to administer one of the options described in this chapter.

#### Note:

You can modify the settings file to set parameters for deskphones that download their upgrade script and application files from the same HTTP server. See Chapter 4: Maintaining 1603SW-I IP Deskphones and "1603SW-I IP Deskphone Scripts and Application Files" in Chapter 4 of the Avaya 1603-SWI SIP Deskphones Administrator Guide.



#### CAUTION:

Only trained installers or technicians should local (craft) procedures. Perform these procedures **only** if instructed to do so by the system or LAN administrator.

Static administration of these options causes upgrades to work differently than if they are administered dynamically. Values assigned to options in static administration are not changed by upgrade scripts. These values remain stored in the telephone until either:

- a new boot file is downloaded, or
- the deskphone is reset, as indicated in Reset System Values on page 39.

Use these option-setting procedures **only** with static addressing and, as always, only if instructed by the system or LAN administrator. Do **not** use these option-setting procedures if you are using DHCP. DHCP is the Dynamic Addressing Process, as indicated in Dynamic Addressing Process/Telephone Startup on page 16.

# **Entering Data for Administrative Options**

This section describes how to enter data for administrative options.

1. Invoke all local procedures by pressing the **Mute** button, up to 7 numeric dial pad buttons, and the # button.

A 6-second timeout is in effect between button presses after pressing the **Mute** button. If you do not press a valid button within 6 seconds of pressing the previous button, the collected digits are discarded. In this case, no administrative option is invoked.

#### **Local Administrative Options**

- 2. Attempts to enter invalid data are rejected, and the telephone emits an error beep.
- 3. If you enter a numeric digit for a value or for an IP address or subnet mask field after entering only a zero, the new digit replaces the zero.
- 4. Press the # button to go to the next step.
- 5. To backspace, press the leftmost softkey. When you press the applicable button or key to backspace, the most recently entered digit or period is erased from the display. The cursor remains in the erased character's former position.
- 6. If **PROCPSWD** is administered as indicated in Chapter 7 of the *Avaya one-X*™ *Deskphone* Value Edition SIP for 1603SW-I IP Deskphones Administrator Guide, you must type the Local Procedure password after pressing Mute and before pressing the code for your given local programming option.

#### Note:

If **PROCSTAT** has been administered to 1, you will not be able to invoke any administrative options other than VIEW.

## **About Local Administrative Procedures**

Local administrative procedures allow you to customize the 1603SW-I IP Deskphone installation for your specific operating environment. This section provides a description of each local administrative option covered in this guide, with references to the pages on which the option appears.

#### Note:

Unless otherwise prohibited by administration, the user can view but not change most of the parameters associated with Local Administrative procedures. For more information about this option, see the applicable user guides.

<b>Local Programming Option</b>	Code	See
Set 802.1X operational mode	8 0 2 1 X (8 0 2 1 9)	Set the 802.1X Operational Mode on page 23.
Static addressing	A D D R (2 3 3 7)	Static Addressing Installation on page 27.
Automatic Gain Control	A G C (2 4 2)	Disable/Enable Automatic Gain Control on page 30.
DHCP chaddr field value	C H A D D R (2 4 2 3 3 7)	Manually Setting the DHCP Client Hardware Address on page 32.
Clear values to factory defaults	C L E A R (2 5 3 2 7)	Clear Procedure on page 33.

<b>Local Programming Option</b>	Code	See
Group Identifier	G R O U P (4 7 6 8 7)	Group Identifier on page 34.
Interface Control	INT (468)	Interface Control on page 35.
Event Logging	L O G (5 6 4)	<u>Disable/Enable Event</u> <u>Logging</u> on page 37.
Reset the telephone	RESET (7 3 7 3 8)	Reset System Values on page 39.
Restart the telephone	RESET (7 3 7 3 8)	Restart the Telephone on page 40.
Site-Specific Option number	S S O N (7 7 6 6)	Site-Specific Option Number Setting on page 41.
Test the telephone	T E S T (8 3 7 8)	Self-Test Procedure on page 42.
View current parameter values and file names	V I E W (8 4 3 9)	The View Administrative Option on page 48.

#### Note:

Unless otherwise prohibited using administration, the user can view but not change most of the parameters associated with Local Administrative Procedures. For more information about this option, see the applicable user guide(s).

# **Set the 802.1X Operational Mode**

Use the following procedure to set or change the operational mode.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 8 0 2 1 9 # (Mute 8 0 2 1 x #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

After entry of the command sequence, the following text displays:

802.1x=setting \*=change #=OK

where the **setting** is the current value of the system value DOT1X (802.1X Supplicant Mode), defined as:

Pass-thru mode if setting = 0

#### **Local Administrative Options**

- P-t w/Logoff (pass-thru with Logoff) mode if setting = 1
- Supplicant mode without pass-thru or p-t w/Logoff if setting = 2
- 2. Perform one of the following steps:
  - If you want to change the DOT1X mode value, go to Change the DOT1X Mode Value on page 24.
  - If you want to change the DOT1XSTAT mode value go to Change the DOT1XSTAT Mode Value on page 25.

## **Change the DOT1X Mode Value**

Use the following procedure to change the DOT1X mode value.

1. To change the mode value, press \*.

Depending on the current value, the next sequential valid mode value is selected and displayed as the setting. For example, if the current value is pass-thru (0), pressing \* changes the value to 1 (p-t w/Logoff). ("p-t w/Logoff" stands for "pass-thru with Logoff".) If the current value is Supplicant mode (2), pressing \* changes the value to 0 (pass-thru).

If a value different from the current 802.1X value is entered, the following text displays left-justified at the top of the display:

Save new value? \*=no #=yes

2. Press the \* button to terminate the procedure, or the # button to save the new value. If you press the # button, the telephone displays the following text:

New value being saved

The telephone saves the new value.

## Change the DOT1XSTAT Mode Value

Use the following procedure to change the DOT1XSTAT mode value.

1. Press #.

The following text displays:

```
Supplicant=Setting
*=change #=OK
```

where the **setting** is the current value of the system value DOT1XSTAT (802.1X Supplicant Mode), defined as:

- Disabled if setting = 0
- Unicast only if setting = 1
- Unicast/multicast if setting = 2
- 2. To change the mode value, press \*.

Depending on the current value, the next sequential valid mode value is selected and displayed as the setting. For example, if the current value is Disabled (0), pressing \* changes the value to 1 (Unicast only). If the current value is Unicast/multicast mode (2), pressing \* changes the value to 0 (Disabled).

If a value different from the current 802.1X value is entered, the following text displays left-justified at the top of the display:

```
Save new value?
*=no
        #=yes
```

3. Press the \* button to terminate the procedure, or the # button to save the new value. If you press the # button, the telephone displays the following text:

```
New value being saved
```

The telephone saves the new value.

# **Pre-Installation Checklist for Static Addressing**

Before performing static addressing, verify that all the requirements listed in the Verify These Network Requirements section of the Pre-Installation Checklist are met. You do not have to consider item 4, as it refers to the DHCP server. In addition, you must have the values for the following parameters. Failure to do so can cause data entry errors that prevent the telephone

## **Local Administrative Options**

checklist for each subnet.

1.	The IP address of the deskphone.
2.	The IP address of the router.
3.	The IP subnet mask.
4.	The IP address of the HTTP and/or HTTPS server.
5.	The IP address of the DNS server.
6.	The VLAN ID (the L2QVLAN value).
7.	The VLANTEST value.

from working. Such errors can also have a negative impact on your network. Print copies of this

# **Static Addressing Installation**

The usual way to assign IP addresses to IP telephones is the automatic method described in Dynamic Addressing Process/Telephone Startup on page 16. There might be times, however, when manual assignment of IP addresses is desired.



#### CAUTION:

Static addressing is necessary when a DHCP server is unavailable.

Because of the increased opportunities for text entry errors associated with static addressing, we very strongly recommend that a DHCP server be installed and static addressing avoided.

When you configure SIP proxy server manually, the 1603-SWI SIP Deskphone will use TLS (not UDP or TCP) to access the server.

Use the following procedure to invoke manual address information programming.

- 1. Start manual address programming by performing one of the following steps:
  - a. During normal DHCP processing, press the \* key while "\* to program" displays during the DHCP process.

or

b. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

#### Mute 2 3 3 7 # (Mute A D D R #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

The telephone displays:

Phone=nnn.nnn.nnn New=

where *nnn.nnn.nnn* is the current IP address system value of the telephone.

2. Enter the **telephone's IP address** followed by the **#** button.

The telephone displays:

CallSv=nnn.nnn.nnn.nnn New=

where *nnn.nnn.nnn* is the current system value of the SIP proxy IP address.

#### **Local Administrative Options**

3. Enter the **SIP proxy IP address** followed by the **#** button.

The telephone displays:

```
Router=nnn.nnn.nnn.nnn
New=
```

where *nnn.nnn.nnn* is the current system value of the router IP address.

4. Enter the **router IP address** followed by the **#** button.

The telephone displays:

```
Mask=nnn.nnn.nnn.nnn
New=
```

where *nnn.nnn.nnn* is the current system value of the IP netmask.

5. Enter the **IP netmask** followed by the # button.

The telephone displays:

```
FileSv=nnn.nnn.nnn.nnn
New=
```

where *nnn.nnn.nnn* is the current system value of the HTTP/HTTPS server IP address.

6. Enter the File server followed by the # button.

The telephone displays one of the following texts, depending on the current setting of the system parameter NVL2Q (802.1Q):

If NVL2Q is 0:	802.1Q=auto *=change #=OK
If NVL2Q is 1:	802.1Q=on *=change #=OK
If NVL2Q is 2:	802.1Q=off

7. Press \* to change **802.1Q** to the next sequential value. For example, if the current value is 0 (auto) pressing \* changes it to 1 (on) and if the current value is 2 (off), pressing \* changes it to 0 (auto).

\*=change #=OK

The display is updated to show the current status of 802.1Q.

8. Press the # button to continue the procedure without changing the displayed status of 802.1Q

The telephone displays the following text:

```
VLAN ID=dddd
New=
```

where *dddd* is the current system value of the 802.1 VLAN ID.

9. Enter a valid value between 0 and 4094 for the new value of the 802.1 VLAN ID.

The telephone displays the following message:

```
VLAN test=ddd
New=
```

where ddd is the number of seconds to wait for the DHCPOFFER on a non-zero VLAN.

10. Enter a valid value between 0 and 999 for the new value of the **DHCPOFFER** wait period. The telephone displays:

```
Save new values?
*=no #=yes
```

11. Press the # button to save the new values you entered.

The telephone displays:

```
New values
being saved
```

Once the new values are stored, the telephone is reset.

If a new boot program is downloaded from the HTTP server after you enter static addressing information, you must reenter your static addressing information.

# **Disable/Enable Automatic Gain Control**

Use the following procedure to turn automatic gain control for the handset, headset, and/or the Speaker on or off.

#### Note:

The user can potentially override the AGC local procedure settings, as described in the telephone user guide. If overridden, the backup file stores the AGC value(s) set by the user and ignores any setting established using this local procedure.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 2 4 2 # (Mute A G C #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

2. After entry of the command sequence, one of the following displays, based on the current value of the system value AGCHAND:

If AGCHAND = 1: Handset AGC=on 0=off #=OK

If AGCHAND = 0: Handset AGC=off 1=on #=OK

3. To change the AGC Handset value from On to Off, press 0. To change the AGC Handset value from Off to On, press 1.

If the telephone has a Headset interface one of the following displays, based on the current value of the system value AGCHEAD:

If AGCHEAD = 1: Headset AGC=on 0=off #=OK

If AGCHEAD = 0: Headset AGC=off 1=on #=OK

If the telephone does not have a headset interface, proceed to Step 5.

4. To change the AGC Headset value from On to Off, press **0**. To change the AGC Headset value from Off to On, press 1.

One of the following displays, based on the current value of the system value AGCSPKR:

If AGCSPKR = 1: Speaker AGC=on 0=off #=OK

If AGCSPKR = 0: Speaker AGC=off 1=on #=OK

5. To change the AGC Speaker value from On to Off, press **0**. To change the AGC Speaker value from Off to On, press 1.

If a value different from the current AGCHAND value and/or the current AGCHEAD value and/or the current AGCSPKR value is entered, the following text displays left-justified at the top of the display:

Save new value? \*=no #=yes

6. Press the \* button to terminate the procedure, or the # button to save the new value(s). If you press the # button, the telephone displays the following text:

New value being saved

The telephone saves the new value(s).

# Manually Setting the DHCP Client Hardware Address

Use this procedure to manually set or change the Client Hardware Address, if you use static addressing rather than DHCP.

1. While the telephone is on-hook and idle, press the following sequence of keys on the telephone's faceplate:

Mute 2 4 2 3 3 7 # (Mute C H A D D R #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

The telephone displays the following text left-justified at the top of the display:

where **ddd** is the value of NVCHADDR, the system variable for the DHCP Client Hardware Address.

2. To change the Client Hardware Address value, enter a valid client hardware address. This value is usually the MAC address, which DHCP then converts to an integer preceded by zeroes.

For all IP telephones, if a value different from the current value of NVCHADDR is entered, the following text displays left-justified at the top of the display:

```
Save new value?
*=no
        #=yes
```

3. Press the \* button to terminate the procedure, or the # button to save the new value. If you press the # button, the telephone displays the following text:

```
New value being saved
```

The telephone saves the new value.

## **Clear Procedure**

Sometimes, you might want to remove all administered values, user-specified data, and option settings. Essentially, you want to return a telephone to its initial "clean slate" or out of the box condition. This is usually done when passing a telephone to a new, dedicated user when the user's LOGOFF option is not sufficient. For example, a new user is assigned the same extension, but requires different permissions than the previous user.

The C L E A R option erases all administered data—static programming, file server and call server programming, and user settings including Contact button labels and locally programmed Feature button labels, and restores all such data to default values. The C L E A R option does not affect the software load itself. If you have upgraded the telephone, the telephone retains the latest software. Once you have cleared a telephone, you can administer it normally.



#### CAUTION:

This procedure erases all administered data, without any possibility of recovering the data.

Use the following procedure to clear the telephone of its administrative, user-assigned and options values.

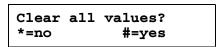
1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 2 5 3 2 7 # (Mute C L E A R #)

#### Note:

Press the Mute button momentarily. Do not press this button while pressing other kevs/buttons.

The following text displays left-justified at the top of the display:



2. If you do not want to clear all values, press \* (no) to terminate the procedure and retain the current values.

A screen displays the following prompt on the top line:

Are you sure? \*=no #=yes

#### **Local Administrative Options**

3. Press the \* button to terminate the procedure without clearing the values. Press the # button to clear all values to their initial default values.

A confirmation tone sounds and the following text displays left-justified at the top of the display:

```
Clearing values.
```

The telephone is cleared to its "out of the box" state.

# **Group Identifier**

Use the following procedure to set or change the Group Identifier.

#### Note:

Perform this procedure only if the LAN Administrator instructs you to do so. For more information about groups, see The GROUP System Value on page 46.

While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

#### Mute 4 7 6 8 7 (Mute G R O U P)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

The following text displays left-justified at the top of the display:

```
Group=ddd
New=_
```

where *ddd* is the Group value.

1. Enter a valid **Group** value (0-999).

If a value different from the current Group value is entered, the following text displays left-justified at the top of the display:

```
Save new value?
*=no #=yes
```

2. Press the \* button to terminate the procedure, or the # button to save the new value.

If you press the # button, the following text displays:

```
New value
being saved
```

The new value is saved and the user interface is restored to its previous state.

## **Interface Control**

Use the following procedure to set or change the interface control value.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 4 6 8 # (Mute I N T #)

#### Note:

Press the Mute button momentarily. Do not press this button while pressing other keys/buttons.

2. After entry of the command sequence, telephones with an internal Ethernet switch display the following text, depending on the current interface control value:

```
PHY1=status
*=change #=OK
```

where status is the value of PHY1STAT, defined as:

- Status is auto when PHY1STAT = 1
- Status is **10Mbps HDX** when PHY1STAT = 2
- Status is 10Mbps FDX when PHY1STAT = 3
- Status is 100Mbps HDX when PHY1STAT = 4
- Status is **100Mbps FDX** when PHY1STAT = 5
- 3. To change the PHY1 value, press \*.

Depending on the current value, the next sequential valid PHY1 value is selected and displayed as the status. For example, if the current value is 10Mbps HDX (2), pressing \* changes the value to 3 (10Mbps FDX).

#### **Local Administrative Options**

4. Press the \* button to terminate the procedure, or the # button to save the new value. If you press the # button, the following text displays:

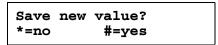
```
PHY2=status
*=change #=OK
```

where *status* is the value of PHY2STAT, defined as:

- Status is disabled when PHY2STAT = 0.
- Status is auto when PHY2STAT = 1
- Status is 10Mbps HDX when PHY2STAT = 2
- Status is **10Mbps FDX** when PHY2STAT = 3
- Status is 100Mbps HDX when PHY2STAT = 4
- Status is 100Mbps FDX when PHY2STAT = 5
- 5. To change the PHY2 value, press \*.

Depending on the current value, the next sequential valid PHY2 value is selected and displayed as the status. For example, if the current value is 10Mbps HDX (2), pressing \* changes the value to 3 (10Mbps FDX).

The following text displays left-justified at the top of the display:



6. Press the \* button to terminate the procedure, or the # button to save the new values. If you press the # button, the following text displays.

New value being saved

The new values are saved and a restart occurs automatically. The user interface is restored to its previous state.

## **Disable/Enable Event Logging**

Use the following procedure to enable or disable logging of system events.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 5 6 4 # (Mute L O G #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

2. After entry of the command sequence, the telephone displays the following text, depending on the current value of the system parameter NVLOGSTAT:

```
Log=status
*=change #=OK
```

where status is the type of logging indicated by the NVLOGSTAT value, defined as:

- Status is disabled when NVLOGSTAT = 0
- Status is **emergencies** when NVLOGSTAT = 1
- Status is alerts when NVLOGSTAT = 2
- Status is critical when NVLOGSTAT = 3
- Status is errors when NVLOGSTAT = 4
- Status is warnings when NVLOGSTAT = 5
- Status is notices when NVLOGSTAT = 6
- Status is information when NVLOGSTAT = 7
- Status is debug when NVLOGSTAT = 8
- 3. To change the logging status, press \*.

Depending on the current value, the next sequential valid NVLOGSTAT value is selected and displayed as the status. For example, if the current value is alerts (2), pressing \* changes the value to 3 (critical). If the current value is debug (8), pressing \* changes the value to 0 (disabled).

If a value different from the current NVLOGSTAT value is entered, the following text displays left-justified at the top of the display:

Save new value? \*=no #=yes

#### **Local Administrative Options**

4. Press the \* button to terminate the procedure, or the # button to save the new value. If you press the # button, the telephone displays the following text:

The telephone saves the new value.

## Logoff

Use the following procedure to log off a telephone.



### L CAUTION:

Once a telephone is logged off, a password and extension might be needed to log back on.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 5 6 4 6 3 3 # (Mute L O G O F F #)

#### Note:

Press the Mute button momentarily. Do not press this button while pressing other keys/buttons.

2. After entry of the command sequence, the telephone unregisters from the call server. The telephone display (and button module display, if applicable) clears, then displays the following prompt for subsequent login:

```
Enter Extension
EXT= #=OK
```

## **Reset System Values**

Use the following procedure to reset all system values and system initialization values except AUTH and NVAUTH to the default values. It also resets the 802.1X identity and password to the default values.



### CAUTION:

This procedure erases all static information except the extension number and password, without any possibility of recovering the data.

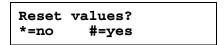
1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

### Mute 7 3 7 3 8 # (Mute R E S E T #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

The IP telephones display the following text left-justified at the top of the display:





### L CAUTION:

As soon as you press the # button, all static information except the extension number and password will be erased, without any possibility of recovering the data.

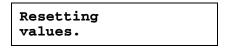
2. If you do not want to reset the system values, press \* (no) and proceed to Step 4.

The following prompt displays on the top line:

```
Are you sure?
*=no
        #=yes
```

3. Press the \* button to continue without resetting the values and proceed to Step 4. Or, press the # button to reset values to their defaults.

All telephones display the following text left-justified at the top of the display while the system values are reset to defaults:



The telephone resets from the beginning of registration, which takes a few minutes.

#### **Local Administrative Options**

4. If you do not reset the telephone, the telephone displays the following prompt:

```
Restart phone?
*=no
        #=yes
```

5. Press the \* key to terminate the procedure without restarting the telephone. Otherwise, press # and perform the following Restart procedure.

## **Restart the Telephone**

Use the following procedure to restart the telephone.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 7 3 7 3 8 # (Mute R E S E T #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

The IP telephones display the following text left-justified at the top of the display:

```
Reset values?
*=no
        #=yes
```

2. Press the # button to reset values to their defaults, or \* to continue a restart without resetting the values to their defaults.

The telephones display the following text left-justified at the top of the display while the system values are reset to defaults:

```
Resetting
values.
```

Once you press the \* button to restart without resetting the values, the following prompt displays on all IP telephones:

```
Restart phone?
*=no
        #=yes
```

3. Press the \* key to terminate the procedure without restarting the telephone.

Press the # key to restart the telephone.

The remainder of the procedure depends on the status of the boot and application files. See Appendix A: Restart Scenarios.

## **Site-Specific Option Number Setting**



### L CAUTION:

Do **not** perform this procedure if you are using static addressing. Perform this procedure only if you are using DHCP and the LAN administrator instructs you to do this.

Use the following procedure to set the Site-Specific Option Number (SSON).

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

### Mute 7 7 6 6 # (Mute S S O N #)

### Note:

Press the Mute button momentarily. Do not press this button while pressing other keys/buttons.

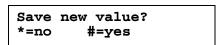
The telephone displays the following text left-justified at the top of the display:



where **ddd** is the value of SSON.

2. Enter a valid value between 128 and 254 for the **SSON**.

For all IP telephones, if a value different from the current SSON value is entered, the following text displays left-justified at the top of the display:



3. Press the \* button to terminate the procedure, or the # button to save the new value. If you press the # button, the telephone displays the following text:



The telephone saves the new value, and restores the user interface to its previous state.

## **Self-Test Procedure**

#### Note:

1603SW-I IP Deskphones store two software code images in reprogrammable non-volatile memory. The primary image, called the "big app" must be running to perform a self-test. The backup image, called the "little app" does not support the self-test.

For self-testing, use the following procedure:

1. To invoke 1603SW-I IP Deskphone self-test procedures, press the following sequence of keys on the faceplate of the telephone:

### Mute 8 3 7 8 # (Mute T E S T #)

#### Note:

Press the **Mute** button momentarily. Do not press this button while pressing other keys/buttons.

All telephones show the following text, left-justified at the top of the display, for 1 second after self-test is invoked:

Self test #=end

A block character with all pixels on then displays in all display character locations for 5 seconds. Display of the block character helps to find bad display pixels.

The telephone displays one of the following:

If self-test passes: Self test passed #=end

If self-test fails: Self test failed

#=end

2. To terminate the self-test, press the # button on the dial pad at any time. Doing so generates a confirmation tone, and returns the user interface to its previous state.

## **Chapter 4: Maintaining 1603SW-I IP Deskphones**

### Introduction

This chapter covers the maintaining the 1603SW-I IP Deskphones, for example, downloading a new software version from the Avaya support Web site. Note that the recommended configuration is the latest call server software and the latest IP deskphone firmware.



### Important:

You can convert a 1603SW-I IP Deskphone from H.323 to SIP software, or from SIP to H.323 software. Note that, depending on the telephone model and the software version you start from, additional steps may be required from those mentioned in this section.

## **Downloading Software Upgrades**

The files necessary to operate the 1603SW-I IP Deskphones are available on the Avaya Web site at: http://www.avaya.com/support. You must select one of two software "bundles" to download the latest software, depending on whether your telephone environment is primarily SIP-centric or H.323-centric.

#### Each SIP bundle contains:

- An upgrade script file, 16xxupgrade.txt, which allows you to upgrade to new software releases and new functionality without having to replace SIP IP telephones. The upgrade script tells the telephone whether a software upgrade is needed. All Avaya IP Telephones attempt to read this file whenever they reset. The upgrade script file is also used to point to the settings file. An "alternate" upgrade script is also included, designed for environments that will support both the H323 and SIP modes of operation. For such environments, the file needs to be edited in those sections having headings of "H.323 EDIT INSTRUCTIONS." Specific instructions are provided in the Readme file that accompanies each software bundle. Once these changes are made, the alternate file should be renamed to "16xxupgrade.txt" and placed in the HTTP download directory. The HTTP download directory holds the telephone backup and application binaries the telephone will download. Renaming the alternate file causes any "16xxupgrade.txt" files residing in that directory to be overwritten.
- parameter settings and values that customize the telephones for your enterprise. One settings file is used for all your Avaya IP Telephones.
- Application files for all current 1603SW-I SIP IP Telephones.

#### Maintaining 1603SW-I IP Deskphones

- Binary files with the latest SIP binary code for 1603SW-I SIP IP Telephones.
- Other useful information such as a ReadMe file.

All these files are in a self-extracting executable file that comes in both zipped and unzipped format.

When the majority of your IP telephones are SIP-based, select the software bundle identified as "SIP" from the Web site. The application files in this SIP software bundle are the same as in the H.323 bundle. The difference is a modified upgrade script file that assumes SIP is the default protocol for your 1603SW-I IP Deskphones, and that H.323 is the exception.

### **Download Procedure**

The Avaya-provided upgrade script files and the binaries included in the zip files upgrade the Avaya IP Telephones. You should not need to modify them. It is essential that all the binary files be together on the file server. When downloading a new release onto a file server with an existing release already on it, we recommend that you:

- Stop the file server.
- Back up all the current file server directories as applicable.
- Copy your 46xxsettings.txt file to a backup location.
- Remove all the files in the download directory. This ensures that you do not have an inappropriate binary or configuration file on the server. The only system values that can be used in the Conditional statement are: BOOTNAME, GROUP, and SIG.
- Download the self-extracting executable file, or the corresponding zip file.
- Extract all the files.
- Copy your 46xxsettings.txt file back into the download directory.
- Check the Readme files for release-specific information.
- Modify the 46xxsettings.txt file as desired.
- Restart the HTTP/HTTPS server.
- Reset your Avaya IP Telephones.

### **Updating the Settings File**

After checking the application software, the 1603SW-I IP Deskphone looks for a 46xxsettings file. Another important maintenance activity might be to update the settings file for any changes to your customized settings. Checking the Read Me file can provide an indication of the impact of a software upgrade on your current settings.

#### Note:

You use one settings file for all your Avaya IP Telephones including the 1603SW-I SIP IP Deskphones covered in this document, 1603SW-I IP Telephones (H.323 protocol, as covered in the Avaya 1600 Series IP Deskphones Administrator Guide), and 4600 Series IP Telephones, as covered in the 4600 Series IP Telephone LAN Administrator Guide (Document 555-233-507).

The Avaya-provided upgrade script file includes lines that tell the telephone to **GET** 46xxsettings.txt. These lines cause the telephone to use HTTP/HTTPS to attempt to download the file specified in the GET command. If the file is obtained, its contents are interpreted as an additional script file. That is how your settings are changed from the default settings. If the file cannot be obtained, the telephone continues processing the upgrade script file. If the settings file is successfully obtained but does not include any setting changes the telephone stops using HTTP. This happens when you initially download the script file template from the Avaya support Web site, before you make any changes. When the settings file contains no setting changes, the telephone does not go back to the upgrade script file.

You can change the settings file name, if desired, as long as you also edit the corresponding **GET** command in the upgrade script file. However, we encourage you **not** to alter the Avaya-provided upgrade script file. If Avaya changes the upgrade script file in the future, any changes you have made will be lost. We strongly encourage you to use the 46xxsettings file to customize your settings instead.

For detailed information about modifying the settings file, see Chapter 4 in the Avaya one-XTM Deskphone Value Edition SIP for 1603SW-I IP Deskphones Administrator Guide.

> See Chapter 7 in the Avaya one-X™ Deskphone Value Edition SIP for 1603SW-I IP Deskphones Administrator Guide for details about specific values. You need only specify settings that vary from defaults, although specifying defaults is harmless.

### **Downloading Language Files**

Language files must be stored in the same location as the 46xxsettings file or under the HTTP Server directory, defined using the **SET HTTPDIR\_HTTP** server directory path command.

You can download a new language file version only if the filename differs from the language file previously downloaded. Alternately, you can remove the old language file using an empty SET LANGxFILE command in the 46xxsettings file before downloading a language file with the same filename.

### **Downloading Font Files**

The font file must be stored in the same location as the 46xxsettings file or under the HTTP Server directory, defined using the **SET HTTPDIR** *HTTP server directory path* command.

You can download a new font tile version only if the filename differs from the font file previously downloaded. Alternately, you can remove the old font file using an empty **SET FONTFILE** command in the 46xxsettings file before downloading a font file with the same filename.

## The GROUP System Value

You might have different communities of end users, all of which have the same model telephone, but which require different administered settings. For example, you might want to restrict Call Center agents from being able to Logoff, which might be an essential capability for "hot-desking" associates. We provide examples of the group settings for each of these situations later in this section.

The simplest way to separate groups of users is to associate each of them with a number. Use the GROUP system value for this purpose. The GROUP system value cannot be set in the 46xxsettings file. The GROUP system value can only be set on a telephone-by-telephone basis. To do so, first identify which telephones are associated with which group, and designate a number for each group. The number can be any integer from 0 to 999, with 0 as the default, meaning your largest group would be assigned as Group 0.

Then, at each non-default telephone, instruct the installer or end-user to invoke the GROUP Local (dialpad) Administrative procedure as specified in Chapter 3: Local Administrative Options and specify which GROUP number to use. Once the GROUP assignments are in place, edit the configuration file to allow each telephone of the appropriate group to download its proper settings.

Here is an illustration of a possible settings file for the example of a Call Center with hot-desking associates at the same location:

```
IF $GROUP SEQ 1 goto CALLCENTER
IF $GROUP SEQ 2 goto HOTDESK
{specify settings unique to Group 0}
goto END
# CALLCENTER
{specify settings unique to Group 1}
goto END
# HOTDESK
{specify settings unique to Group 2}
# END
{specify settings common to all Groups}
```

## **Chapter 5: Troubleshooting Guidelines**

### Introduction

This chapter describes problems that might occur during both installation and normal operation of the 1603SW-I SIP Deskphone and possible ways of resolving these problems.

This chapter contains the following sections:

- Descriptions of error conditions and methods for resolving them.
- The use of the VIEW option to view system values.
- Error and status messages, and methods for resolving them.

### **Error Conditions**

There are three areas where installers can troubleshoot problems before seeking assistance from the system or LAN administrator:

- 1. Check both the power and Ethernet wiring for the following conditions:
  - Whether all components are plugged in correctly.
  - Check LAN connectivity in both directions to all servers DHCP, HTTPS, Avaya Aura Communication Manager, and/or SIP Proxy server.
  - If the telephone is supposed to be powered from the LAN, ensure that the LAN is properly administered and is compliant with IEEE 803.3af.
- 2. If you are using static addressing:
  - Use the View command to find the names of the files being used and verify that these filenames match those on the HTTP/HTTPS server. See The View Administrative Option on page 48 for more information. Check the Avaya Web site to verify whether the correct files are being used.
  - Use the ADDR command to verify IP addresses. See Static Addressing Installation on page 27 for information.
- 3. If the 1603SW-I IP Deskphone is not communicating with the system (DHCP, HTTP, or Avaya Aura Communication Manager call server), make a note of the last message displayed, as described in Table 2 and/or Table 3. Consult the system administrator.
- 4. If you expect the telephone to be IEEE-powered, verify with the LAN administrator that IEEE power is indeed supported on the LAN.

### **DTMF Tones**

SIP desiphones send DTMF tones according to the SEND DTMF TYPE parameter setting. The default setting of this parameter sends DTMF "tones" as "telephone event" RTP packets per RFC 2833. Whether a non-SIP telephone hears these DTMF tones depends on whether the Avaya Communication Manager media resource converts the "telephone event" RTP packets into audio RTP packets.

**Power Interruption** 

If power to a 1603SW-I IP Deskphone is interrupted while the telephone is saving the application file, the HTTP/HTTPS application can stop responding. If this occurs, restart the HTTP/HTTPS server.

## The View Administrative Option

If you are using static addressing and encounter problems, use the following procedure to verify the current values of system parameters and file versions.

#### Note:

Unless otherwise prevented using administration, the user can view but not change most of the parameters associated with Local Administrative Procedures. For more information about this option, see the applicable user guide(s).

#### Note:

If the View Network Information option is not available due to being disabled by administration, use the **ADDR** option to view IP addresses. See Static Addressing Installation in Chapter 3: Local Administrative Options. The IP addresses might have been entered incorrectly. Verify whether you were provided with correct IP addresses.

1. While the deskphone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 8 4 3 9 # (Mute V I E W #)

### Note:

Press the **Mute** button momentarily. Do not press this key while pressing other keys.

The following text displays left-justified at the top of the display:

View settings #=exit \*=next

2. Press the \* button at any time during viewing to display the next name and system value pair or filename from Table 1. The first pair returns after the last pair displays. Values that cannot display on one line wrap to the next line.

Press the # button at any time during viewing to terminate the procedure and restore the user interface to its previous state. The names and values display in the following order:

**Table 1: Parameter Values** 

Name	System Value	Format
Model	16ccDccc	Up to 8 ASCII characters: MODEL value.
Phone SN	cccccccccccccc	Telephone Serial Number, up to 18 ASCII characters.
PWB SN	ccccccccccccc	Printed Wiring Board (circuit board) Serial Number, up to 18 ASCII characters. Applies only to 16xx IP Telephones that have a software-readable PWB serial number and comcode.
PWB comcode	nnnnnnnn	9 ASCII numeric characters. Applies only to 16xx IP Telephones that have a software-readable PWB serial number and comcode.
MAC address	hh:hh:hh:hh:hh	Each octet of the MAC address displays as a pair of hexadecimal numbers.
L2 tagging	ccccccc	Up to 9 ASCII characters: "on" if NVL2Q = 1 "off" if NVL2Q = 2 "auto: on" if NVL2Q = 0 and 802.1Q tagging is on "auto: off" if NVL2Q = 0 and 802.1Q tagging is off
VLAN ID	cccc	Up to 4 ASCII characters. Value is L2QVLAN if 802.1Q tagging is on or "none" of 802.1Q tagging is off.
		1 of 2

### **Troubleshooting Guidelines**

**Table 1: Parameter Values (continued)** 

Name	System Value	Format
IP address	nnn.nnn.nnn	Up to 15 ASCII characters: IPADD value.
Subnet mask	nnn.nnn.nnn	Up to 15 ASCII characters: NETMASK value.
Router	nnn.nnn.nnn	Up to 15 ASCII characters: the IP address of the router in use.
File server	nnn.nnn.nnn.nnn.nnnnn	Up to 21 ASCII characters: IP address and port of last file server used successfully during initialization or "0.0.0.0" if no file server was used successfully.
Call server	nnn.nnn.nnn.nnn.nnnnn	Up to 21 ASCII characters: IP address and port of the call server currently in use, otherwise "0.0.0.0."
802.1X	If DOT1X = 0 If DOT1X = 1 If DOT1X = 2	pass-thru mode. p-t w/Logoff (pass-thru with Logoff). Supplicant mode.
Group	nnn	Up to 3 ASCII numeric characters: GROUP value.
Protocol:	ccccccc	Up to 8 ASCII characters, currently only "H.323."
	filename.ext	4 to 32 ASCII characters. The name of the primary ("big app") image file currently stored in the telephone (endptAPPINUSE).
	ccccccc Ethernet	2 to 7 ASCII characters, either "100Mbps", "10Mbps", or "No" depending on the current speed of the Ethernet line interface.
	bootcodename	1 to 32 ASCII characters. The name of the backup ("little app") image file currently stored in the telephone (endptBOOTNAME).
		2 of 2

## **Installation Error and Status Messages**

The 1603SW-I IP Deskphones issue messages in the currently selected language, or if the telephone is logged off, in the language specified by the LANGSYS parameter value. If English is not the selected language, the telephone displays messages in English only when they are associated with local procedures, for example, MUTE V I E W.

Most of the messages in Table 2 display only for about 30 seconds, and then the telephone resets. The most common exception is Extension in Use, which requires manual intervention.

Table 2: Possible Error and Status Messages During Installation of 1603SW-I IP **Deskphones** 

Message	Cause/Resolution
802.1X Failure	CAUSE: Incorrect credentials provided for authentication or not provided at all.  RESOLUTION: Follow the display prompts and reenter the 802.1X ID and password.
Address Conflict	<b>CAUSE:</b> The telephone has detected an IP address conflict. <b>RESOLUTION:</b> Verify administration to identify duplicate IP address(es).
Bad FileSv Address	CAUSE: The HTTP/HTTPS server IP address in the IP telephone's memory is all zeroes.  RESOLUTION: Depending on the specific requirements of your network, this may not be an error. If appropriate, either administer the DHCP server with the proper address of the HTTP/HTTPS server, or administer the telephone locally using the ADDR option. The ADDR option is explained in <a href="Chapter 3: Local Administrative Options">Chapter 3: Local Administrative Options</a> .
Bad Router?	<b>CAUSE:</b> The telephone cannot find a router based on the information in the DHCP file for GIPADD. <b>RESOLUTION:</b> Use static addressing to specify a router address, or change administration on DHCP, as indicated in the 1603SW-I Deskphone Administrator Guide.
Contacting call server	<b>CAUSE:</b> The telephone has rebooted successfully and is moving on to attempt to register with the call server. <b>RESOLUTION:</b> Allow the telephone to continue.
DHCP: CONFLICT * to program	<b>CAUSE:</b> At least one of the IP address offered by the DHCP server conflicts with another address. <b>RESOLUTION:</b> Review DHCP server administration to identify duplicate IP address(es).
EEPROM error, repair required	CAUSE: Downloaded application file was not downloaded or saved correctly.  RESOLUTION: The telephone automatically resets and attempts to re-initialize.
	1 of 3

Table 2: Possible Error and Status Messages During Installation of 1603SW-I IP **Deskphones (continued)** 

Message	Cause/Resolution
Finding router	CAUSE: The telephone is proceeding through boot-up. RESOLUTION: Allow the telephone to continue.
Incompatible Versions	<b>CAUSE:</b> The telephone is not a 1603SW-I IP Deskphone, and it does not supprt the SIP firmware. <b>RESOLUTION:</b> Replace the telephone with a 1603SW-I IP Deskphone.
Invalid file	<b>CAUSE:</b> The telephone does not have sufficient room to store the downloaded file. <b>RESOLUTION:</b> Verify the proper filename is administered in the script file, and that the proper application file is located in the appropriate location on the HTTP/HTTPS server.
IP Address Error	<b>CAUSE:</b> The gatekeeper reports an invalid IP address. <b>RESOLUTION:</b> This should never happen. Contact Avaya.
License Error	CAUSE: The call server does not support IP telephony. RESOLUTION: Contact Avaya to upgrade your license.
Limit Error	<b>CAUSE</b> : The call server has reached its limit of IP stations. <b>RESOLUTION</b> : Unregister telephones not in use, or contact Avaya to upgrade your license.
NAPT Error	CAUSE: A device between the telephone and the call server is invoking Network Address Port Translation, which the 1603SW-I IP Deskphones do not support.  RESOLUTION: Contact the System Administrator to remove or re-administer the device.
Network connectivity has been lost. Trying to reestablish	<b>CAUSE:</b> The telephone has detected a loss of signal on the Ethernet interface lasting longer than about one second. <b>RESOLUTION:</b> Check power and cabling.
No Ethernet	CAUSE: When first plugged in, the IP telephone is unable to communicate with the Ethernet.  RESOLUTION: Verify the connection to the Ethernet jack, verify the jack is Category 5, verify power is applied on the LAN to that jack, etc.
Packet Error	CAUSE: Protocol timeout error.  RESOLUTION: Reenter the correct extension and password. If the condition persists, contact the System Administrator.
Restarting	CAUSE: The telephone is in the initial stage of rebooting. RESOLUTION: Allow the telephone to continue.
Subnet conflict	CAUSE: The telephone is not on the same VLAN subnet as the router.  RESOLUTION: Administer an IP address on the telephone using <u>Static</u> Addressing Installation, or administer network equipment to administer the telephone appropriately.  2 of 3

Table 2: Possible Error and Status Messages During Installation of 1603SW-I IP Deskphones (continued)

Message	Cause/Resolution
System busy	CAUSE: Most likely, the number of IP endpoints on the call server is already at maximum, Less likely, network resource is unavailable.  RESOLUTION: The telephone was attempting to access a network resource (DHCP server, HTTP server, or the call server) and was not successful. Check the resource being called upon for its availability. If the resource appears operational and properly linked to the network, verify that addressing is accurate and that a communication path exists in both directions between the telephone and the resource.
System Error	CAUSE: The call server has an unspecified problem.  RESOLUTION: Consult your Avaya Media Server administration and troubleshooting documentation.
Undefined Error	CAUSE: The call server has rejected registration for an unspecified reason.  RESOLUTION: Consult your Avaya Media Server administration and troubleshooting documentation.
Updating: DO NOT UNPLUG THE TELEPHONE	CAUSE: The telephone is updating its software image. RESOLUTION: Allow the telephone to continue.
Wrong Set Type	<b>CAUSE</b> : The call server does not recognize the set type. <b>RESOLUTION</b> : Ensure the call server is properly administered to expect the appropriate telephone for the IP address and extension.
	3 of 3

## **Operational Errors and Status Messages**

Table 3 identifies some of the possible operational problems that might be encountered after successful 1603SW-I IP Deskphone installation. The user guide for a specific telephone model also contains troubleshooting for users having problems with specific IP telephone applications. Most of the problems reported by 1603SW-I IP Deskphone users are not likely to be problems with the telephone itself. Problems are more likely LAN-based, where Quality of Service, server administration, and other issues can impact end-user perception of IP telephone performance.

Table 3: Operational Error Conditions for 1603SW-I IP Deskphones

Condition		Cause/Resolution
The telephone reboots continuously (every 30 seconds), or reboots continuously about every 15 minutes.		CAUSE: The controller is not provisioned. RESOLUTION: Provision it either locally, through the settings file, or through DHCP.
		<b>CAUSE</b> : This might be a firmware fault because the MAC address in memory is corrupted. <b>RESOLUTION</b> : Return the telephone to Avaya for repair.
	n the telephone turns ntly, but the telephone	<b>CAUSE:</b> This is a hardware fault. <b>RESOLUTION:</b> The telephone must be returned to Avaya for repair.
The telephone stops working in the middle of a call,	<b>AND</b> no lights are lit on the telephone and the display is not lit.	CAUSE: Loss of power.  RESOLUTION: Check the connections between the telephone, the power supply, and the power jack. For example, verify that either static addressing was not used or that any changes to static addresses were entered correctly.
	AND power to the telephone is fine (and the telephone might have gone through the restarting sequence).	CAUSE: Loss of path to Avaya Media Server, DHCP Lease expired, or DHCP server not available when telephone attempts to renegotiate DHCP lease.  RESOLUTION: As above.
		1 of 5

Table 3: Operational Error Conditions for 1603SW-I IP Deskphones (continued)

Condition		Cause/Resolution
The telephone was working, but does not work now,	AND no lights are lit on the telephone and the display is not lit.	CAUSE: Loss of power.  RESOLUTION: Check the connections between the telephone, the power supply, and the power jack.
	AND power to the telephone is fine, but there is no dial tone. The display might show "System Busy."	CAUSE: Loss of communication with the call server.  RESOLUTION: Check LAN continuity from the call server to the telephone using ARP or trace-route and from the telephone to the call server by invoking a Feature button. Verify that LAN administration has not changed for the Gatekeeper, TN 2302AP boards, or the LAN equipment (routers, servers, etc.) between the switch and the telephone. Verify no one changed the telephone settings locally using the VIEW and ADDR codes, as described earlier in this guide. Verify the telephone volume is set high enough. Finally, conduct a self-test.
	<b>AND</b> the telephone was recently moved.	CAUSE: Loss of communication with the call server.  RESOLUTION: As above, but pay particular attention to the possibility that the telephone is being routed to a different DHCP server, or even a different call server switch. If so, the new server or switch might need to be administered to support the telephone.
	AND the network was recently changed to upgrade or replace servers, re-administer the Avaya Media Server, add or change NAT, etc.	CAUSE: Loss of communication with the call server.  RESOLUTION: As above.
		2 of 5

Table 3: Operational Error Conditions for 1603SW-I IP Deskphones (continued)

Condition		Cause/Resolution
The telephone works, but the audio quality is poor, specifically:		
	the user hears echo when speaking on a handset.	CAUSE: Echo from digital-to-analog conversion on your Avaya Media Server trunk.  RESOLUTION: Verify which trunk is causing the echo, and swap the trunk's Trunk Termination parameter on the call server.
	the user is on Speaker and hears no echo, but the far-end hears echo.	CAUSE: Room acoustics.  RESOLUTION: Ensure that there are six inches or so of blank space to the right of the telephone. If that is insufficient, use the handset.
	the user experiences sudden silences such as gaps in speech, or static, clipped or garbled speech, etc.	CAUSE: Jitter, delay, dropped packets, etc. RESOLUTION: You can have the user provide diagnostic data by invoking the Network Information feature under the A (Avaya) button on the telephone. One or more Quality of Service (QoS) features should be implemented in the network as covered in Chapter 3: Local Administrative Options. CAUSE: Improper non-Category 5 wiring. RESOLUTION: Replace non-Category 5 wiring with Category 5 wiring.
	the user hears fluctuations in the volume level which are worse when the Speaker is on, or at the beginning of a call, or when a call goes from no one talking abruptly to a loud voice.	CAUSE: The user has changed the Automatic Gain Control (AGC) or environmental acoustics are not consistent with the current audio settings.  RESOLUTION: Try different on/off settings for the AGCHAND, AGCHEAD, and AGCSPKR parameters.
The telephone works properly, except incoming DTMF tones are not received.		<b>CAUSE</b> : The TN2302AP board does not pass in-band DTMF tones. <b>RESOLUTION</b> : None; the board is operating as designed.
The HTTP/HTTPS sare ignored (not bein telephone).	cript file and settings file ng used by the	CAUSE: The system value AUTH is set to 1 (HTTPS required) but no valid address is specified in TLSSRVR.  RESOLUTION: Change AUTH to 0 (zero), or enter a valid address for TLSSRVR.
		3 of 5

Table 3: Operational Error Conditions for 1603SW-I IP Deskphones (continued)

Condition		Cause/Resolution
The HTTP/HTTPS script file is ignored or not used by the telephone,	AND the HTTP/ HTTPS server is a LINUX or UNIX system.	CAUSE: The telephone expects lines of the script file to terminate with a <carriage return=""> <line feed="">. Some UNIX applications only terminate lines with <line feed="">. Editing the script file with a UNIX-based editor can strip <carriage return="">s from the file. Doing so causes the entire file to be treated as a comment, and thus be ignored.  RESOLUTION: Edit the script file with a Windows®-based editor, or another editor that does not strip out the <carriage return="">.  CAUSE: UNIX and LINUX systems use case-sensitive addressing and file labels.  RESOLUTION: Verify the file names and path in the script file are accurately specified.</carriage></carriage></line></line></carriage>
	AND telephone administration recently changed.	CAUSE: The 16xxupgrade.txt file was edited incorrectly, renamed, etc.  RESOLUTION: Download a clean copy of the 16xxupgrade.txt file from the Avaya support Web site at http://www.avaya.com/support, and do not edit or rename it. Customize or change only the 46xxsettings file, as discussed in Chapter 4: Maintaining 1603SW-I IP Deskphones.
Some settings in the settings file are being ignored while other settings are being used properly.		<b>CAUSE:</b> Improper settings file administration. <b>RESOLUTION:</b> Verify that customized settings are correctly spelled and formatted.
Some settings in the settings file are being ignored while other settings are being used properly,	AND the setting being ignored is one or more of the AGC settings.	CAUSE: The user changed the AGC setting(s), which were placed in the backup/restore file of the user.  RESOLUTION: The user can reset the AGC value(s) back to the desired setting(s), or the backup file can be edited to delete the custom AGC settings.
Telephone power is telephone is saving the HTTP/HTTPS apresponding.	the application file <b>and</b>	cause: The HTTP/HTTPS server stops responding if power is interrupted while a telephone is saving the application file.  RESOLUTION: Restart the HTTP/HTTPS server, as applicable.

4 of 5

### **Troubleshooting Guidelines**

Table 3: Operational Error Conditions for 1603SW-I IP Deskphones (continued)

Condition	Cause/Resolution
The user indicates an application or option is not available.	CAUSE: The 46xxsettings script file is not pointed to accurately, or is not properly administered to allow the application.  RESOLUTION: Assuming the user is meant to have that application, verify the 46xxsettings script file is properly specified for your system, including case if your file server is UNIX or LINUX, and extension. Then, verify all the relevant parameters indicated in Table 7 of the Avaya 1603SW-I IP Deskphones Administrator Guide are accurately specified in the 46xxsettings file.
	5 of 5

## **Appendix A: Restart Scenarios**

### Scenarios for the Restart Process

The sequence of the restart process depends on the status of the boot and application files. This appendix explains the different scenarios possible.

#### Note:

The file names used in this appendix are examples only. Your particular file names are likely to be different.

### **Restart the Telephone**

Use the following procedure to restart the telephone.

1. While the telephone is on-hook and idle, press the following sequence of keys on the faceplate of the telephone:

Mute 7 3 7 3 8 # (Mute R E S E T #)

Press the **Mute** button momentarily. Do not press this key while pressing other keys.

The following text displays left-justified at the top of the display:

Reset values? \*=no #=yes

2. Press the # button to continue the procedure.

The following text displays left-justified at the top of the display while the system values are reset to defaults:

Resetting values.

Once you press the \* button to restart without resetting the values, the following prompt displays:

Restart phone? \*=no #=yes

### **Restart Scenarios**

3. Press the \* key to terminate the procedure without restarting the telephone.

Press the # key to restart the telephone.

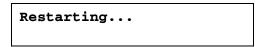
The remainder of the procedure depends on the status of the boot and application files:

If this condition applies:	See:
Boot File Needs to be Upgraded	Boot File Needs to be Upgraded on page 61.
Latest Boot File Loaded/No Application File or Application File Needs to be Upgraded	Latest Boot File Loaded/No Application File or Application File Needs to be Upgraded on page 64.
Latest Boot File and System-Specific Application File Already Loaded	Latest Boot File and System-Specific Application File Already Loaded on page 66.

### **Boot File Needs to be Upgraded**

The telephone automatically downloads an upgraded boot file if applicable. In this case, these messages appear:

The telephone displays:



While the hardware is being initialized, the telephone displays:

```
Initializing
```

While either the application file if there is one or the boot code is uncompressed into RAM, the telephone displays:

```
Loading: 5 secs
replboot_v3.app
                    4084KB
```

This message counts the seconds as the application file (replboot\_v3.app in this example) is being written into RAM.

When control is passed to the software that was just loaded, the following messages display:

```
Starting...
```

```
Updating boot code...
DO NOT UNPLUG THE PHONE!
```

This message continues while the new boot code is being written into RAM.

The telephone displays the speed of the Ethernet interface in Mbps, that is, 0, 10, or 100. The message No Ethernet displays until the software determines whether the interface is 10 Mbps or 100 Mbps.

#### Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC, assuming the administrator has not disabled the latter interface through the PHY2STAT setting.

The software determines whether sufficient IP address information was downloaded. In this scenario, it is discovered that sufficient information has **not** been downloaded. The following message displays while the DHCP process is invoked:

```
DHCP: 0 secs
* to program
```

The number of elapsed seconds is incremented once per second, until DHCP successfully completes.

While the IP telephone establishes a TCP connection to the HTTP server, the telephone displays the following message:

```
HTTP:n ipadd
```

where **n** is the number of the IP address obtained from the HTTP server and **ipadd** is the IP address.

The following message displays while the HTTP process is invoked:

```
HTTP: n uri
```

The number increments once per second, until the HTTP server responds.

While the upgrade script file is being downloaded, all IP telephones display the following message:

```
HTTP:n sc etag
```

where n is the number of the IP address obtained from the HTTP server, sc is the status code of the HTTP response and *etag* is the value of the ETag header.

The script file is processed. The software determines that the telephone's boot code file name (BOOTNAME) is not the latest version. APPNAME is set to the name of an

application file to replace the boot code. The following message displays while the application file is downloaded into RAM:

```
app_filename
n KB received
```

where *n* is the number of KBs downloaded.

The following message displays while the application file is stored in flash memory:

```
Saving to flash
n%, x secs
```

where n is the percentage of the file stored, and x is the number of elapsed seconds. This usually takes longer than the file download.

The following message displays while the telephone is reset so the application file can be executed:

```
Restarting...
```

While the boot code is rewritten, the telephone displays:

```
Updating...
n%, x secs
```

where n is the percentage of boot code rewritten and x is the number of elapsed seconds during rewriting.

When the new boot code is successfully written into the flash memory, the application corrupts its own checksum stored in flash. The application then resets the telephone so the latest system-specific application file can be downloaded.

Continue with the next procedure.

## Latest Boot File Loaded/No Application File or **Application File Needs to be Upgraded**

This procedure occurs with normal application file upgrades.

The telephone displays:

Restarting	

The telephone detects and displays the speed of the Ethernet interface in Mbps, that is, 0, 10, or 100. The message No Ethernet displays until the software determines whether the interface is 10 Mbps or 100 Mbps.

#### Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC.

The software determines whether sufficient IP address information was downloaded. In this scenario, it is discovered that sufficient information has not been downloaded. The following message displays while the DHCP process is invoked:

```
DHCP: 0 secs
* to program
```

The number of elapsed seconds is incremented once per second, until DHCP successfully completes.

While the IP telephone establishes a TCP connection to the HTTP server, the telephone displays the following message:

```
HTTP:n ipadd
```

where n is the number of the IP address obtained from the HTTP server and ipadd is the IP address.

The following message displays while the HTTP process is invoked:

```
HTTP: n uri
```

The number increments once per second, until the HTTP server responds.

While the upgrade script file is being downloaded from the HTTP server, all IP telephones display the following message:

```
HTTP:n sc etag
```

where *n* is the number of the IP address obtained from the HTTP server, *sc* is the status code of the HTTP response and *etag* is the value of the ETag header.

The script file is processed. The software determines that the name of the boot code file in the telephone (BOOTNAME) is not the latest version. APPNAME is set to the name of an

application file to replace the boot code. The following message displays while the application file is downloaded into RAM:

app\_filename n KB received

where *n* is the number of KBs downloaded.

The following message displays while the application file is stored in flash memory:

Saving to flash n%, x secs

where n is the percentage of the file that was stored, and x is the number of elapsed seconds. This usually takes longer than the file's download.

The telephone is reset so the new system-specific application file can be executed.

Continue with the next procedure.

## Latest Boot File and System-Specific **Application File Already Loaded**

This happens with normal resets.

The telephone displays:

Restarting...

The telephone detects and displays the speed of the Ethernet interface in Mbps, that is, 0, 10, or 100. The message No Ethernet displays until the software determines whether the interface is 10 Mbps or 100 Mbps.

#### Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC.

The software determines whether sufficient IP address information was downloaded. In this scenario, it is discovered that sufficient information has **not** been downloaded. The following message displays while the DHCP process is invoked:

```
DHCP: 0 secs
* to program
```

The number of elapsed seconds is incremented once per second, until DHCP successfully completes.

While the IP telephone establishes a TCP connection to the HTTP server, the telephone displays the following message:

```
HTTP:n ipadd
```

where n is the number of the IP address obtained from the HTTP server and ipadd is the IP address.

The following message displays while the HTTP process is invoked:

```
HTTP: n uri
```

The number increments once per second, until the HTTP server responds.

While the upgrade script file is being downloaded from the HTTP server, all IP telephones display the following message:

```
HTTP:n sc etag
```

where *n* is the number of the IP address obtained from the HTTP server, *sc* is the status code of the HTTP response and *etag* is the value of the ETag header.

The script file is processed. The software determines that the name of the boot code file in the telephone (BOOTNAME) is the latest version, and the name of the application file in the telephone is the same as APPNAME.

System-specific registration with the Avaya media server is invoked.

When registration finishes, a dial tone is available on the telephone.

**Restart Scenarios** 

# **Appendix B: Glossary of Terms**

## **Terms Used in This Guide**

802.1P 802.1Q	802.1Q defines a layer 2 frame structure that supports VLAN identification and a QoS mechanism usually referred to as 802.1P.
802.1X	Authentication method for a protocol requiring a network device to authenticate with a back-end Authentication Server before gaining network access. Applicable 1600 Series IP Telephones support IEEE 802.1X for pass-through and for Supplicant operation with the EAP-MD5 authentication method.
ARP	Address Resolution Protocol, used, for example, to verify that the IP address provided by the DHCP server is not in use by another IP telephone.
CLAN	Control LAN, type of Gatekeeper circuit pack.
DHCP	Dynamic Host Configuration Protocol, an IETF protocol used to automate IP address allocation and management.
DiffServ	Differentiated Services, an IP-based QoS mechanism.
DNS	Domain Name System, an IETF standard for ASCII strings to represent IP addresses. The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate between domain names and IP addresses. Avaya 1600 Series IP Telephones can use DNS to resolve names into IP addresses. In DHCP, TFTP, and HTTP files, DNS names can be used wherever IP addresses were available as long as a valid DNS server is identified first.
Gatekeeper	H.323 application that performs essential control, administrative, and managerial functions in the media server. Sometimes called CLAN in Avaya documents.
H.323	A TCP/IP-based protocol for VoIP signaling.
НТТР	Hypertext Transfer Protocol, used to request and transmit pages on the World Wide Web.
HTTPS	A secure version of HTTP.
IETF	Internet Engineering Task Force, the organization that produces standards for communications on the internet.
LAN	Local Area Network.
MAC	Media Access Control, ID of an endpoint.
QoS	Quality of Service, used to refer to several mechanisms intended to improve audio quality over packet-based networks.
Unnamed Registration	Registration with Avaya Aura Communication Manager by an IP telephone with no extension. Allows limited outgoing calling.
TLS	Transport Layer Security, an enhancement of Secure Sockets Layer (SSL). TLS is compatible with SSL 3.0 and allows for privacy and data integrity between two communicating applications.
VLAN	Virtual LAN.
VoIP	Voice over IP, a class of technology for sending audio data and signaling over LANs.

**Glossary of Terms** 

## **Appendix C: Related Documentation**

### **IETF Documents**

IETF documents provide standards relevant to IP Telephony and are available for free from the IETF Web site: http://www.ietf.org/rfc.html.

### **ITU Documents**

Access the ITU Web site for more information about ITU guidelines and documents, available for a fee from the ITU Web site: http://www.itu.int.

## **ISO/IEC, ANSI/IEEE Documents**

Access the ISO/IEC standards Web site for more information about IP Telephony standards, guidelines, and published documents: http://www.iec.ch.

**Related Documentation** 

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